

Course: DEN 227 Dental Hygiene Theory and Practice

Topic: Maintenance of Healthy Posture and Management of MSDs

Audience: Adult Learners – Dental Hygiene Students, Associate 2nd-Year Level

Instructional

Objectives: Upon completion of this lesson, the dental hygiene students should be able to:

1. List risk factors for development of musculoskeletal disorders.
2. Describe methods for management of musculoskeletal disorders.
3. Discuss components of healthy posture.
4. Evaluate ways the dental hygienist can prevent the development of musculoskeletal disorders.
5. Recognize the importance of the health and wellness of the dental hygienist in order to help others.

Materials: PowerPoint computer equipment

References:

Dylla, J. M. (2017, December 15). *The six components of Posture videos: Practice in motion: Part 2 - 6 components of posture: CE course*. Dentalcare.com. Retrieved March 9, 2022, from <https://www.dentalcare.com/en-us/professional-education/ce-courses/ce554/the-six-components-of-posture-videos>

Johnson, C., & Kanji, Z. (2016). The impact of occupation-related musculoskeletal disorders on dental hygienists. *Canadian Journal of Dental Hygiene*, 50(2), 72–79. Retrieved March 9, 2022, from, <https://doi.org/https://files.cdha.ca/profession/journal/2242.pdf>

McConaghy, C. (2019, January 2). *The Physical Pain of the Helping Professions*. RDH. Retrieved March 9, 2022, from <https://www.rdhmag.com/patient-care/article/16408934/the-physical-pain-of-the-helping-professions>

Thomason, S. C., Suedbeck, J., & Tolle, S. L. (2021, February 26). *An inside look at musculoskeletal disorders among dental hygienists*. Dimensions of Dental Hygiene. Retrieved March 9, 2022, from <https://dimensionsofdentalhygiene.com/article/an-inside-look-at-musculoskeletal-disorders-among-dental-hygienists/>

Wilkinson, B., Bell, K., & Coplen, A. (2019, January 21). *Core Four: Ergonomics reinvigorated*. Dimensions of Dental Hygiene. Retrieved March 9, 2022, from <https://dimensionsofdentalhygiene.com/article/core-four-ergonomics/>

Personnel: None Needed

Time: 50 minutes

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
3 minutes	<p data-bbox="297 275 664 302">I. INSTRUCTIONAL SET</p> <p data-bbox="297 352 496 380"><u>A. Introduction</u></p> <p data-bbox="297 390 1133 814">Dental hygienists working in clinical practice are at a high risk for development of musculoskeletal disorders (MSDs) due to regularly performing procedures that involve awkward, static postures with precise and repetitive motions. Musculoskeletal disorders and injuries can be so significant, that the dental hygienist may end up leaving clinical practice or dental hygiene field all together. Therefore, it is of utmost importance for the dental hygienist to strive to prevent the development of musculoskeletal disorders, particularly through a healthy posture, and make every effort to properly manage any injuries once developed.</p> <p data-bbox="297 858 568 886"><u>B. Established Mood</u></p> <p data-bbox="297 896 1133 1045">By learning about musculoskeletal disorders, how they develop, and ways to prevent and manage these disorders, you are demonstrating a commitment to your own health and wellbeing, to your patients, and to the field of dental hygiene.</p> <p data-bbox="297 1092 685 1119"><u>C. Gain Attention/Motivation</u></p> <p data-bbox="297 1129 1133 1591">Imagine spending your workdays hovering over patients, contorting your body in awkward positions to improve your visual field without inconveniencing your patients or making them uncomfortable. Your workdays are long and demanding and your body is taking the brunt of it. You have pain and discomfort like you've never experienced before. In fact, the pain has gotten so severe, that you've had to call off work and you've made an appointment with your primary care physician to in hope of finding some relief. Are you thinking this is impossible or won't happen to you? Think again! In as little as one year, 60-96% of you working in clinical practice will develop a musculoskeletal disorder.</p> <p data-bbox="297 1638 615 1665"><u>D. Established Rationale</u></p> <p data-bbox="297 1675 1133 1829">By knowing how and why dental hygienists develop musculoskeletal disorders and learning ways to manage and prevent these injuries, you will be able to sustain a long and satisfying career in clinical dental hygiene practice.</p>	<p data-bbox="1170 310 1289 338">Slide #1:</p> <p data-bbox="1170 348 1511 457">Maintenance of Healthy Posture & Management of MSDs Title Slide</p> <p data-bbox="1170 1161 1289 1188">Slide #2:</p> <p data-bbox="1170 1199 1450 1308">Images of Dental Hygienists in Clinical Practice</p> <p data-bbox="1170 1356 1511 1430">Note: Discuss poor posture of clinicians on Slide #2.</p>

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
1 minute	<p data-bbox="298 275 708 306"><u>E. Established Knowledge Base</u></p> <p data-bbox="298 312 1120 464">Have any of you ever experienced discomfort or pain in your body from the procedures you were performing in the dental hygiene clinic? If so, where did you experience this pain? How did you manage it or make it better?</p> <p data-bbox="298 510 639 541"><u>F. Instructional Objectives</u></p> <p data-bbox="298 548 1120 772">After completion of today's lecture, you will be able to list risk factors for development of musculoskeletal disorders, describe methods for management of musculoskeletal disorders, discuss components of healthy posture, evaluate ways the dental hygienist can prevent the development of musculoskeletal disorders, and recognize the importance of the health and wellness of the dental hygienist in order to help others.</p>	<p data-bbox="1170 275 1289 306">Slide #3:</p> <p data-bbox="1170 312 1430 348">Learning Objectives</p>

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
2 minutes	I. Musculoskeletal Disorders (MSDs) A. Definition B. Common Areas of Injury <ol style="list-style-type: none"> 1. Neck 2. Shoulders 3. Upper Back 4. Lower Back 5. Spine 6. Forearm 7. Wrists 	Slide #4: Definition of MSDs Q: In what areas of the body do MSDs most commonly occur for dental hygienists? A: Neck, shoulders, upper and lower back, spine, forearm, wrists.
1 minute	C. Occupational Risks <ol style="list-style-type: none"> 1. Biomechanical 2. Psychosocial 	Slide #5: Common Areas of Injury for the Dental Hygienist
3 minutes	D. Biomechanical Risk Factors <ol style="list-style-type: none"> 1. Repetitive movements 2. Vibration <ol style="list-style-type: none"> a. Powered instrumentation 3. Forceful exertion <ol style="list-style-type: none"> a. Forceful grip and repetitive motions of hand-scaling 4. Increased muscle load <ol style="list-style-type: none"> a. Corded handpieces 5. Types of instruments <ol style="list-style-type: none"> a. Small-handle diameters b. Heavier weights c. Dull instruments 6. Number of patients treated per day <ol style="list-style-type: none"> a. Treating more than 8 patients daily 7. Insufficient breaks between patients 8. Deposit removal <ol style="list-style-type: none"> a. High number of patients with moderate to heavy calculus 9. Narrow scope of practice <ol style="list-style-type: none"> a. Low task variety b. Example - performing SRP 50% of the time 10. Poor operator/patient positioning <ol style="list-style-type: none"> a. 8 o'clock position most ergonomically compromising 11. Cumulative practice time <ol style="list-style-type: none"> a. Practicing 10+ years 	Slide #6: Occupational Risk Factors Slide # 7: Biomechanical Risk Factors
3 minutes		Slide #8: Biomechanical Risk Factors (Continued)
		Note: Examples from clinical practice experience.
4 minutes	E. Psychosocial Risk Factors <ol style="list-style-type: none"> 1. Lack of control over scheduling 2. Time management 	Slide #9: Psychosocial Risk Factors

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
4 minutes	<ol style="list-style-type: none"> Employee-employer relationships Late patients High-performance standards Wage satisfaction Job demands Pressure to fill downtime Lack of coworker support Perceived work-life interference Little involvement in decision-making Low autonomy <p>F. Risk Factors Table</p>	<p>Slide #10: Psychosocial Risk Factors (Continued)</p> <p>Slide #11: Risk Factors Table (Part 1)</p> <p>Slide 12: Risk Factors Table (Part 2)</p>
	<p>II. MSD Prevention</p> <p>A. Prevention Strategies</p> <ol style="list-style-type: none"> Wear loupes <ol style="list-style-type: none"> Clinicians that don't experience more pain Select instruments and equipment <ol style="list-style-type: none"> Use instruments with large handles Use cordless handpieces Sharpen your instruments Maximize ultrasonic use Balance your schedule <ol style="list-style-type: none"> Task variety Take breaks Exercise <ol style="list-style-type: none"> Incorporate 2 one-hour sessions of yoga per week Ergonomic training <ol style="list-style-type: none"> Lessons on posture! <ol style="list-style-type: none"> 11 o'clock and 1 o'clock optimal for ideal posture Self-assessment/posture buddies Stretching 	<p>Note: Increased wrist and hand pain with psychosocial stressors.</p> <p>Slide 13: Prevention Strategies</p> <p>Q: In what instances would you be seeing more patients with moderate to heavy calculus?</p> <p>A: Community Clinics, New offices, accepting new patients, taking over a previous dental hygienist's schedule etc.</p>
1 minute	<p>III. Components of Healthy Posture</p> <p>A. Components of Posture</p> <ol style="list-style-type: none"> Base of support The pelvis Lumbar spine Trunk Shoulders Head and neck 	<p>Slide 14: Prevention Strategies (Continued)</p> <p>Slide 15: Components of Posture</p> <p>Q: What do you think a healthy posture looks like? What structures of the body are involved in maintaining a healthy posture?</p>

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
1 minute	A. Base of Support <ol style="list-style-type: none"> Positioning of feet <ol style="list-style-type: none"> Flat on floor Should-width apart In front of hips Positioning of knees <ol style="list-style-type: none"> Slightly lower than hips 	A: Answers will vary. Base of support, the pelvis, lumbar spine, trunk, shoulders, head, neck.
1 minute	B. Pelvis <ol style="list-style-type: none"> Hips level <ol style="list-style-type: none"> Oblique or uneven position triggers spine deviations Deviations in spine cause compensations in shoulders, neck, and head Improper position causes fatigue and pain 	Note: Deviation of one structure causes compensation of another. Slide 16: Base of Support
3 minutes	C. Lumbar spine <ol style="list-style-type: none"> Raise tailbone up <ol style="list-style-type: none"> Rounding low back triggers compensations in thoracic and cervical spine and shoulders Improper position leads to fatigue, pain, and dysfunction Use hip-hinging <ol style="list-style-type: none"> Leaning forward to improve direct/indirect vision Motion occurs at hips Use wide base of support Keep pelvis and hips level and tailbone up 	Note: Have students practice proper posture as you review. Slide 17: The Pelvis Slide 18: Lumbar Spine
1 minute	D. Trunk <ol style="list-style-type: none"> Avoid side-bending <ol style="list-style-type: none"> Causes pain in neck and shoulders 	Slide 19: Trunk
2 minutes	E. Shoulders <ol style="list-style-type: none"> Do not slump Hold down and back <ol style="list-style-type: none"> Use muscles between shoulder blades to hold down and back Position within 20 degrees of the trunk <ol style="list-style-type: none"> Deviations cause neck and shoulder pain Can lead to tightness in forearm, wrist, and hand Can cause burning, pulling, numbness, and tingling 	Slide 20: Shoulders Slide 21: Shoulders (Continued) Slide 22: Shoulders (Continued)
2 minutes	E. Head and Neck <ol style="list-style-type: none"> Ear aligned with shoulder Do not bend or tilt greater than 20 degrees 	Slide 23: Head and Neck

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
1 minute	<ol style="list-style-type: none"> 3. Avoid forward-head positioning <ol style="list-style-type: none"> a. Causes compression of joints and muscle shortening b. Neck pain and headaches occur 	Slide 24: Head and Neck (Continued)
4 minutes	IV. Stretching <ol style="list-style-type: none"> A. Importance of Stretching <ol style="list-style-type: none"> 1. Muscles are contractile in nature 2. Muscles shorten when working 3. Stretch to re-establish length B. Stretching video 	Slide 25: Importance of stretching Slide 26: Arm Stretches for the Dental Hygienist
3 minutes	V. Management of MSDs <ol style="list-style-type: none"> A. Strategies to manage MSDs <ol style="list-style-type: none"> 1. Employ prevention strategies 2. Seek treatment from your PCP 3. Medications 4. Physical Therapy 5. Chiropractic Therapy 6. Massage Therapy 7. Acupuncture 8. Herbal Remedies 	Note: Show students video and have them practice as they watch. Slide 27: Management of MSDs Slide 28: Management of MSDs (Continued)
1 minute	VI. Advocate for Health <ol style="list-style-type: none"> A. Discuss prevention strategies with your employer B. Vital to career longevity C. Be your best to give your best 	Q: Have any of you ever experienced an MSD? If so, how did you treat or manage it? A: Answers will vary. If no one answers, give example of your own experience with MSD and management. Slide 29: Selfcare is not Selfish

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
3 minutes	<p>VI. CLOSURE</p> <p>A. <u>Summary of Major Points</u></p> <p>I hope you now have a better understanding of how musculoskeletal disorders develop and strategies to prevent and manage these disorders. I hope you also understand the importance of your health for a long and satisfying career.</p> <p>B. <u>Provide a Sense of Accomplishment</u></p> <p>Through this lesson, I hope you've gained an awareness of the likelihood of a dental hygienist to develop a musculoskeletal disorder and an understanding of the importance of proper posture and other prevention strategies.</p> <p>C. <u>Assignment</u></p> <p>For a better understanding of our topic today, you should visit dentalcare.com and complete the Practice in Motion: Part I continuing education course.</p>	<p>Slide 30:</p> <p>Practice in Motion: Part I</p> <p>Q: Based what you've learned today, do any of you think you may use improper posture in the clinic? If so, what component are you lacking and what symptom do you experience as a result?</p> <p>A: Improper positioning of the base of support, pelvis, lumbar spine, trunk, shoulders, head and neck. Symptoms will vary based on deviations.</p>

TIME	CRITICAL THINKING ACTIVITY	NOTES-MEDIA-Q/A
6 minutes	<p>Case Study: Jane recently graduated and has been working in clinical practice for about 6 months. She has started to notice pain in her lower back, frequent headaches, and pain in her nondominant hand. The dental office she works at is busy her schedule is demanding. She treats about 12 patients per day and has little variety in her schedule—mostly performing adult prophys all day long. She has little support from her coworkers and employer as well as the front office staff. At night she goes home and feels both mentally and physically exhausted.</p> <ol style="list-style-type: none"> 1. Distinguish biomechanical and psychosocial risk factors that may be related to Jane’s pain? Answer: Biomechanical risk factors include improper posture, treating more than 8 patients per day, narrow scope of practice. Psychosocial risk factors include job demands, lack of coworker support, employer-employee relationship, and perceived work-life balance. 2. Formulate a plan to decrease Jane’s risks for developing a musculoskeletal disorder? Answer: Answers will vary. To decrease risks for developing a musculoskeletal disorder, Jane should discuss working less hours per day with her employer and having more control over her schedule. She should also strive to develop a better working relationship with her coworkers and employer. Finally, Jane should employ components of healthy posture including proper lumbar spine positioning and head/neck positioning. 3. Critique Jane’s posture and make suggestions for improvement. Answer: Jane’s poor lumbar spine positioning is most likely the cause of her lower back pain. Jane should pull her tailbone up and implement hip-hinging to improve her visual field. Jane should also maintain her head over her shoulder so that she is not in a forward-head position which is often the cause of headaches. 	<p>Slide 31: Critical Thinking Activity</p> <p>Slide 32: References</p>

Test Questions

Objective #1: List risk factors for development of musculoskeletal disorders.

Test Item: All of the following are risk factors for the development of musculoskeletal disorders **EXCEPT** one. Which one is the **EXCEPTION**?

- a. Number of patients treated per day
- b. Right-hand dominant
- c. Cumulative practice time
- d. Time management

Objective #2: Describe methods for management of musculoskeletal disorders.

Test Item: All of the following are methods for management of musculoskeletal disorders **EXCEPT** one. Which one is the **EXCEPTION**?

- a. Physical Therapy
- b. Herbal Remedies
- c. Low-sugar diets
- d. Implementation of prevention strategies

Objective #3: Discuss components of healthy posture.

Test Item: Components for healthy posture include all the following **EXCEPT** one. Which one is the **EXCEPTION**?

- a. Base of Support
- b. Hands
- c. Head and Neck
- d. The Pelvis

Objective #4: Evaluate ways the dental hygienist can prevent the development of musculoskeletal disorders.

Test Item: 60 to 96% of dental hygienists will develop a musculoskeletal disorder within one year of clinical practice. Implementation of prevention strategies is critical for the longevity of a hygienist's career. Evaluate ways a dental hygienist can prevent the development of musculoskeletal disorders. Write your response in one paragraph (3-4 sentences).

Objective #5: Recognize the importance of the health and wellness of the dental hygienist in order to help others.

Dental hygienists should not sacrifice their own well-being for the mere comfort and convenience of others. Discuss ways dental hygienists might sacrifice their own well-being for others. Write your response in one paragraph (3-4 sentences).

Correct Answers:

1. B
2. C
3. B
4. There are several ways a dental hygienist can prevent the development of musculoskeletal disorders. First and foremost, dental hygienists should strive to maintain a healthy, neutral posture to avoid deviations and compensations from developing. They should also work with their employer to ensure provision of adequate instruments as well as autonomy and control over scheduling.
5. Dental hygienists often choose their field due to their desire to help others. Dental hygienists with a demanding schedule are often in a hurry when providing patient treatment. To compensate for time, they may not ask patients to move and adjust their positioning which in turn greatly decreases the visual field of the dental hygienist and makes it more likely for the hygienist to use improper posture leading to the likelihood of developing an MSD.